



The Sanctuary's move to its Scituate headquarters (a former Coast Guard Station) provides additional and much-needed space for staff offices, meeting space and storage. The boat house and dock, pictured here with the NOAA boat *Hawk*, offer easy access to Sanctuary waters.

*Photographers:
(main building) NOS staff;
(boathouse) SBNMS staff*

On-Going Activities

Over the past few years, largely since the previous scoping meetings, the Sanctuary initiated a number of key projects that merit elaboration. Activities associated with these projects are summarized below. Over the same timeframe, Sanctuary staffing increased from five positions to nine and the budget was increased to address expanding site needs. This added capacity has contributed greatly to the work being done.

Capital Investments in Infrastructure

Legislation passed by Congress in 2001 authorized transfer of Coast Guard Station Scituate to NOAA to serve as the Sanctuary's headquarters. These facilities, including the main building, garage, boathouse and piers, provide space for current and future staff as well as partnering state and federal agencies working collaboratively with the site. These partners include the Massachusetts Environmental Police, the National Marine Fisheries Service Office of Law Enforcement, and the Massachusetts Coastal Zone Management Program. The Sanctuary recently completed a facility development plan and is embarking on a \$1 million renovation.

Funds to upgrade and acquire a more capable research vessel are being sought. The Sanctuary's existing boat, the 30' *Hawk*, has grown unreliable, is inadequate for our use, and is in need of replacement. A call for preliminary proposals for a new boat was issued in 2001, and a potential builder has been identified. Field trials on a representative boat have been conducted. A naval architect has been retained to assist with developing final specifications for the boat and inspection of its construction. NOAA's Office of Marine and Aircraft Operations will assist in procurement and provide oversight.

Sanctuary Advisory Council

Public involvement in Sanctuary management is vitally important to the National Marine Sanctuary Program (NMSP). One key to achieve this involvement is formation of a Sanctuary Advisory Council (SAC) for each site. A SAC brings together members of a diverse community to provide advice to the Sanctuary Superintendent on the management and protection of the Sanctuary. Section 315 of the National Marine Sanctuaries Act authorizes the Secretary of Commerce to establish SACs. This authority has been delegated to the Director of the NMSP.

A revised SAC Charter for the Sanctuary and new membership received approval by the NMSP Director in 2001. The SAC for the Sanctuary is composed of a total 21 members, of which 15 seats are public voting and 6 seats are

ex-officio governmental non-voting (Appendix A.) There are 15 alternate public members. The SAC has public representation from four states (Connecticut, Massachusetts, New Hampshire and Maine) and eight Congressional districts. The SAC is among the largest in the national system and is distinguished by its multiple state representation. The SAC will be instrumental in revision of the site's management plan, among other assistance provided.

Public Outreach

As an offshore site, the Sanctuary presents limited direct access to the general public. Yet, three major portals to the Sanctuary provide opportunities for expanded outreach and education - directly by commercial whalewatch vessels and virtually through visitor exhibits and the Sanctuary website. For example:

The New England Aquarium and the Sanctuary entered a partnership in 2000, in which the Aquarium will host several kiosks in an outdoor display that highlights Sanctuary resources and management issues. The Aquarium already offers a 15-minute interactive, multi-screen video production called "Storm Over Stellwagen" in its Immersive Theater. The Sanctuary contracted with the Aquarium to add a 2.5-minute trailer to that production to more fully describe the national system of marine sanctuaries.

The Center for Coastal Studies and the Sanctuary entered a partnership in 2001, wherein the Center hosts and staffs the Sanctuary's Provincetown Visitor Exhibit. The exhibit is a high-tech interactive installation that introduces both the Stellwagen Bank National Marine Sanctuary and the national marine sanctuary system. It is open to the public daily during May through October. The exhibit takes an in-depth look at some of the important resources and research in the Sanctuary as well as ongoing conservation efforts. Other uses are being considered to afford year round benefit to the area's resident population.

The International Wildlife Coalition and the Sanctuary teamed together in 2001 and produced the "See a Spout - Watch Out" campaign to prevent whale strikes by recreational boaters in the Sanctuary. In 2001, over 5,000 boaters were trained; more than 20,000 rack cards and posters and 10,000 decals and stickers were distributed; and 100 metal dockside signs were installed at major departure points to the Sanctuary. Plans are underway to expand the campaign more widely throughout the Gulf of Maine in out-years with possible co-sponsorship by the National Marine Fisheries Service under their "Watchable Wildlife" program.

A new Sanctuary website was developed in 2001 and can be found at <http://stellwagen.nos.noaa.gov>. The site provides a wealth of data, general information and imagery and will continue to be populated with expanding content. It will host all schedules and products generated during the management plan review and should be regularly consulted. Future plans for the



Sanctuary education and outreach efforts range from school programs, such as "Lefty — the life-sized right whale" to a high-tech interactive visitor exhibit in the Cape Cod town of Provincetown, a gateway to the Sanctuary.

*Photographers:
(whale program)
Bob Michelson;
(exhibit) SBNMS staff*

On-Going Activities



Like a modern-day Ahab, a researcher uses techniques modified from whaling days to apply a non-invasive suction cup tag to an endangered whale. The Sanctuary contributes to several cetacean research projects like this, as well as to development of a long-term database of local humpback whales. Researchers identify individual humpbacks by the distinctive patterns on the underside of their flukes.

*Photographers:
(tagging) SBNMS staff;
(fluke pattern)
Regina Asmutis-Silvia, IWC*

website are to use it as a vehicle for educational and outreach products; these include on-line courses such as a training and certification program for whalewatch naturalists, as well as reports on the science and management of the Sanctuary ecosystem.

The Sanctuary is working to expand its level of outreach to whalewatch companies and their passengers with new brochures, charts and posters. Work is underway to increase the Sanctuary's presence at key whalewatch and boating ports bordering Massachusetts Bay through signage and exhibits.

Water Quality Monitoring

The final National Pollutant Discharge Elimination System permit issued to the Massachusetts Water Resources Authority (MWRA) for its 9-mile sewage outfall pipe into Massachusetts Bay calls for an annual report to the Sanctuary about water quality changes that are impacting, have impacted, or may impact Sanctuary resources. The requirement of the summary report was part of a change to the draft permit at the request of the Sanctuary. The Sanctuary receives notification if the MWRA monitoring program identifies accedences in permit limits. The MWRA outfall project is the largest secondary treatment facility in the nation. The wastewater flow through the outfall started in the fall of 2000; its seaward terminus is located 12.5 miles inshore of the Sanctuary's western boundary.

Although modeling by MWRA suggests there should be no impact on Sanctuary water quality through normal operation of the outfall pipe, there has been significant expression of public concern over potential impacts from anomalous events. To assess this possibility, the Sanctuary established a multi-year water quality monitoring program in 2001. This program interfaces with the Harbor Outfall Monitoring Program supported by MWRA and increases sampling coverage to multiple sites within the Sanctuary. Because of potential public interest in these additional data, they will be available upon request for independent evaluation.

Whale Research

Stellwagen Bank's importance as a major feeding ground for marine mammals was one of the primary reasons for the Sanctuary's designation. The information archive on the whales of Stellwagen Bank is extensive. Many peer-reviewed research publications have been generated based on that archive. The Sanctuary is committed to its continued maintenance and update and is providing the following means of support.

In 2000, the Sanctuary funded research to further understand the resident population of humpback whales on Stellwagen Bank. Little is known about how animals may be using the Bank during migratory transition periods of spring and fall. Year-round monthly cruises in the Sanctuary were conducted to photograph and identify arrival times of individual whales and their associations with other animals. Samples for genetic studies were taken to support research on gender and family lineage.

In 2001, the Sanctuary funded research on whale feeding behavior relative to sand lance distribution and abundance. The sand lance is a major forage species in the Sanctuary. In 2001, a major project was initiated to compile, integrate and analyze over 20 years of spatially referenced data on whale sightings in the Sanctuary. Research results will define spatial-temporal patterns of whale distribution in the Sanctuary and inform management decision-making.

The Sanctuary continues to support analysis of photographs for new whale identifications and co-sponsors the annual whale-naming workshop. Support also is being provided for prototype studies on the impacts of vessel noise on marine mammals.

Whalewatch Guidelines

The Sanctuary and the National Marine Fisheries Service's (NMFS) Office of Protected Resources co-sponsored a brochure in 1999 on revised guidelines for whalewatching in the northeast region. The guidelines provide approach and departure speeds and minimal distance for commercial and recreational boats intent on watching whales. The brochure has been reprinted by NMFS regularly and distributed by both agencies up to the present. Regulations for approach distances for the endangered northern right whale are included in the brochure. In 2000, NMFS issued an Advance Notice of Proposed Rulemaking for whalewatching in the northeast in consultation with the Sanctuary. Draft rules currently are undergoing NMFS review.

USGS Mapping Project

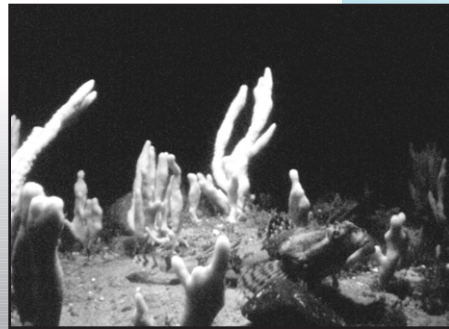
The US Geological Survey (USGS) completed an initial series of 18 seafloor topographic maps (scale 1:25,000) in 1997 that cover the Sanctuary. The data were collected using a hull-mounted multibeam sonar system. This map series was followed by a sun-illuminated version of the multibeam map in 2001. Additional backscatter and sediment characterization maps are in preparation that will also cover the Sanctuary.

This comprehensive data set already is providing valuable assistance in studies of Sanctuary biodiversity, fish ecology and cultural resources, as noted in subsequent activities. The USGS has incorporated much of these data into a GIS CD-ROM on Massachusetts Bay. The Sanctuary multibeam map, in conjunction with extensive ground truthing (e.g. video, still photos, sediment samples), provides the most complete characterization of the seafloor in the Gulf of Maine.



Called SEABOSS, this unique piece of equipment allows scientists to capture images (both still and video) of the seafloor while sampling the sediments for study at the surface.

*Photographer:
U.S. Geological Survey*



Remotely-operated vehicles (ROVs), like the MAXROV, allow scientists to spend many hours in areas inaccessible to divers. Sampling an area of the Sanctuary that has been partially closed to fishing reveals diverse seafloor habitat.

*Photographers: (MAXROV)
Peter Auster; (sponge forest)
Peter Auster and
Paul Donaldson,
NURC-UConn.*

Seafloor Habitat Recovery Monitoring Program

This monitoring program is a collaborative effort between scientists at the Sanctuary, the National Undersea Research Center at the University of Connecticut (NURC-UConn), the University of Maine and Brown University. The program began in 2001 and is planned to continue for 10 years. The specific objectives are to quantify and compare the relative impacts of anthropogenic disturbance (e.g., the laying of the Hibernia fiber optic cable in 2000 and fishing with mobile fishing gear) and natural environmental variation (e.g., storm driven currents) with respect to fish communities, seafloor microhabitat structure, soft-sediment infaunal communities and hard-bottom epifaunal communities.

Sampling is being conducted using a remotely operated vehicle (ROV) and the Sanctuary's Integrated Seafloor Imaging System (ISIS), as well as box cores, side scan sonar and current profilers. The ROV is a robot tethered and controlled from the sea surface, while the ISIS is a passive drift camera with video and still photographic capabilities.

Ecology of Fishes and Seafloor Habitat

The Sanctuary is supporting scientists from the Sanctuary and NURC-UConn involved in two on-going research projects. Both projects are intended to guide informed consideration of the design, location and effectiveness of potential marine reserves within the Sanctuary. The results of these projects will also inform the process of fisheries management undertaken by the New England Fishery Management Council and should foster collaboration between the agencies.

The first project focuses on the study of fish movement relative to different seafloor habitats. In 2001, a hydrophone array was deployed on the seafloor at a gravel habitat site. A total of 38 Atlantic cod were tagged with acoustic pingers (transmitters) and tracked for up to 4 months. Results indicate significantly higher individual residence times (up to 120 days) over gravel habitat than was previously expected. In 2002 and multiple out-years, additional habitats and additional fish species will be incorporated into the experimental design.

The second project, which began in 1999 and will be completed in 2002, involves the study of species-area relationships for fish and invertebrate taxa in multiple habitats within the Sanctuary. This project entails sampling with an ROV. Results thus far for Year 1 characterize fish diversity over boulder and gravel habitats. These data will be compared to data collected over sand and mud habitats in Year 2.

Western Gulf of Maine Area Closure

The Sanctuary continues to voice support for continuation of the Western Gulf of Maine Area Closure. Specifically, the Sanctuary supports several of the options pending before the New England Fishery Management Council (NEFMC) that either maintain the existing configuration of the closure or extend the boundaries within the Sanctuary to encompass a greater diversity of seafloor habitats. The closure was established by the NEFMC in May 1998 to protect spawning stock of Atlantic cod and other groundfish.

The closure excludes bottom-tending gill nets and mobile fishing gear (such as otter and bottom trawls and scallop dredges) but permits the continued use of shrimp trawls, lobster pots, pelagic purse seining, and hook and line fishing. Because the closure, which incorporates 132 square nautical miles (or about 22%) of the Sanctuary, excludes most bottom-tending fishing gear, it serves as a “reduced impact” reference area for many of the Sanctuary’s on-going research projects on seafloor habitat, as described above.

The area of overlap with the Sanctuary is effectively serving as an important habitat research area with results certain to benefit the NEFMC and the Sanctuary. This outcome is compatible with the NEFMC vote in June 2000 to develop a plan and environmental impact statement regarding establishment of a habitat research area in the Gulf of Maine.

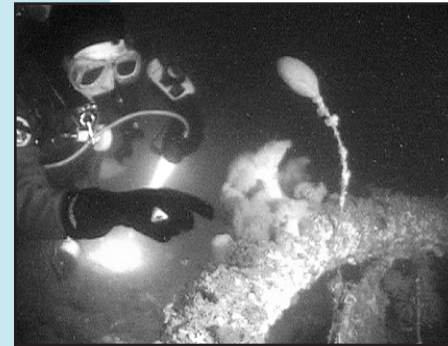
Habitat Use Assessment

In 2001, the Sanctuary began a year-long assessment of human use and marine mammal distribution throughout the Sanctuary. Objectives of the assessment are to: 1) characterize uses, 2) quantify the relative magnitude of use on a seasonal basis, and 3) determine how habitats influence patterns of use and wildlife distributions. Information is collected every month through a standardized, shipboard survey. Data on vessel type, purpose, and location; fixed gear location; and marine mammal species and location are collected. This study replicates an identical assessment completed in 1994-95. Results from both surveys will help establish a baseline of use and contribute to guiding research, education and enforcement efforts.

Submerged Cultural Resources

In 2000, the Sanctuary began to ground truth potential submerged cultural resource targets (numbering around 100) identified using the seafloor topography map provided by the USGS, to ascertain whether they were cultural resources worthy of further investigation. Three targets were investigated in 2000 with the help of the National Ocean Service’s Coast Survey, and one of them is of cultural significance. In 2001, divers determined the shipwreck to be wooden and over 243 feet long.

That year, a workshop was held to train Sanctuary staff and volunteers in appropriate procedures and protocols necessary to investigate and properly identify such cultural resources. A research plan is being developed for the site and further investigation is planned for the summer of 2002. The objective of the research is to identify the purpose and name of the vessel as well as any historical significance.



Shipwrecks are the predominant cultural resource in the Stellwagen Bank area, with some 100 possible targets identified on new seafloor maps. Among the most famous wrecks believed to be located within the Sanctuary is the passenger vessel *Portland* which sank in 1898 with all hands aboard.

Photographers: (Portland image) courtesy of The Maine Historical Society; (diver on unidentified wreck) SBNMS Dive Team



Sanctuary enforcement efforts have been greatly aided by the cooperation of other federal and state partners. U.S. Coast Guard air and sea patrols keep an eye out for violations of federal regulations, while a new joint program with the National Marine Fisheries Service and the Massachusetts Environmental Police provides an enforcement presence during high use seasons.

*Photographers:
(helicopter) SBNMS staff;
(boat) MEP website.*

Enforcement

The mission of Sanctuary enforcement is to ensure compliance with the National Marine Sanctuaries Act, regulations of the Sanctuary (Appendix B), and (within Sanctuary boundaries) other applicable regulations under the Marine Mammal Protection Act, Endangered Species Act, and the Magnuson-Stevens Fishery Conservation and Management Act, for example. A successful enforcement program requires cooperation between state and federal agencies.

The primary agencies involved in Sanctuary enforcement activities are NMFS Office for Law Enforcement (OLE), NMFS Office of Protected Resources and the Massachusetts Environmental Police (MEP). Additionally, the U.S. Coast Guard has assisted with Sanctuary enforcement and related outreach (through its Auxiliary) in the past, but since has been diverted to other matters. As other operations and asset availability permit, the Coast Guard will continue to assist with monitoring activity in the Sanctuary.

A cooperative enforcement plan for the Sanctuary was instituted between NMFS OLE and the Sanctuary in 2001. Under terms of the plan, agreements were developed that authorize deputization of state enforcement officers (MEP) and provide a funding mechanism. An existing cooperative enforcement agreement between OLE and MEP was amended to specifically authorize the National Marine Sanctuaries Act as one of several federal statutes to be enforced through this relationship.

A pilot project conducted between May and August of 2001, using small patrol boats to intercept vessels in the Sanctuary, was well received by the boating public. On-the-water police action was provided by the MEP acting under agreement with the Sanctuary and coordinated by the NMFS OLE. This enforcement effort was the subject of a nationally syndicated half-hour television show produced by Game Warden Wildlife Journal.

The pilot project focused on interpretive law enforcement by which Sanctuary users were informed on matters of Sanctuary regulation through the distribution of educational outreach information. A greater enforcement effort, transitioning more to detection, investigation and prosecution of violations, inter- and intra-agency coordination, and the sharing of assets is planned, which should lead to consistent enforcement awareness and compliance in the Sanctuary.